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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Marios Gerogiokas, et al

Serial No.: 09/916,083

Filed: July 26, 2001

For: SYSTEM AND METHOD FOR BEAM ON
DEMAND

Examiner: W. Daniel, Jr.

Group Art Unit: 2686

Att'y Docket: 2100.019800

APPEAL BRIEF

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Sir:

Applicant hereby submits this Appeal Brief to the Board of Patent Appeals and Interferences in response to the final Office Action dated January 18, 2006. A Notice of Appeal was filed on April 18, 2006 and so this Appeal Brief is timely filed.

The Commissioner is authorized to deduct the fee for filing this Appeal Brief (\$500) from Williams, Morgan & Amerson's P.C. Deposit Account 50-0786/2100.019800.

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I. REAL PARTY IN INTEREST

The present application is owned by Lucent Technologies, Inc. The assignment of the present application to Lucent Technologies, Inc., is recorded at Reel 12048, Frame 0795.

II. RELATED APPEALS AND INTERFERENCES

Applicant is not aware of any related appeals and/or interferences that might affect the outcome of this proceeding.

III. STATUS OF THE CLAIMS

Claims 1-17 are pending in the application. Claims 1-5, 7, and 9-11 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Ward (U.S. Patent No. 6,104,930). Claim 6 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ward in view of Feuerstein, et al (U.S. Patent No. 6,141,565). Claim 8 stands rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ward in view of Lopes, et al (U.S. Patent No. 6,453,176). Claims 12-17 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Smith, et al (U.S. Patent No. 5,021,801) in view of Ward.

IV. STATUS OF AMENDMENTS

There were no amendments after the final rejections.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 sets forth a beam on demand system including at least one radio and a plurality of amplifiers each having an input switchably coupled with the at least one radio by means of a

switch matrix and with at least one beam former. Each amplifier has at least one output coupled to an antenna array. Claim 1 also sets forth a controller for receiving an output transmission power level signal from each of the plurality of amplifiers. The controller generates a control signal to the switch matrix for coupling or uncoupling an amplifier to the at least one radio to modify at least one angular extent of transmission associated with the radio. The control signal is based on the received output transmission power level of the amplifier and a threshold transmission power.

Claim 12 sets forth a method for automatically allocating system equipment of a communication system. The method includes providing equipment to serve various portions of the communication system, monitoring the equipment to determine capacity demands of the various portions, and switching equipment between portions of the communication system using a switch matrix to modify at least one angular extent of the various portions served by the equipment to meet the capacity demands of the various portions.

One embodiment of a beam on demand system described in the specification includes a plurality of amplifiers 118 whose inputs are switch coupled to radios 102, 104, and 106 via beam 112, 114, 116 and a switch matrix 108. See Patent Application, page 5, lines 10-13, and Figure 1. A controller 110 monitors transmission power levels of one or more groups or one or more members of the groups of antenna elements and amplifiers. See Patent Application, page 5, line 33-page 6, line 1. The controller 110 may provide a control signal based on the transmission power level signals that causes switch matrix 108 to couple or uncouple one or more of the amplifiers (and corresponding antenna) to or from a radio. See Patent Application, page 6. For example, a switch 108 may uncouple amplifier 118D and antenna element 120D from radio 102. Amplifier 118D and antenna element 120D are then coupled to radio 104, which is serving

another sector and this sector has in effect been expanded to include a fifth sub-sector. Thus, the angular extent associated with the radio 104 has been modified. See, *e.g.*, Patent Application, page 9, ll. 4-6 and page 10, ll. 2-4, as well as Figures 1-2.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant respectfully requests that the Board review and overturn the four rejections present in this case. The following issues are presented on appeal in this case:

- (A) Whether claims 1-5, 7, and 9-11 are anticipated by Ward;
- (B) Whether claim 6 is obvious over Ward in view of Feuerstein;
- (C) Whether claim 8 is obvious over Ward in view of Lopes; and
- (D) Whether claims 12-17 are obvious over Smith in view of Ward.

VII. ARGUMENT

A. Legal Standards

An anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. That is, there must be something in the prior art as a whole to suggest the desirability,

and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Third, there must be a reasonable expectation of success.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. A recent Federal Circuit case emphasizes that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. Moreover, it is the claimed invention, as a whole, that must be considered for purposes of determining obviousness. A mere selection of various bits and pieces of the claimed invention from various sources of prior art does not render a claimed invention obvious, unless there is a suggestion or motivation in the prior art for the claimed invention, when considered as a whole.

It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious. *See, inter alia, In re Fine*, 5 U.S.P.Q.2d (BNA) 1596, 1599 (Fed. Cir. 1988); *In re Nielson*, 2 U.S.P.Q.2d (BNA) 1525, 1528 (Fed. Cir. 1987); *In re Hedges*, 228 U.S.P.Q. (BNA) 685, 687 (Fed. Cir. 1986).

B. Claims 1-5, 7, and 9-11 are not anticipated by Ward.

Ward describes four spatially fixed downlink radiation beams, each having an angular beamwidth of around 30°. Ward also describes a control unit 805 for allocating carrier frequencies to the beams. See Ward, col. 9, ll. 55-67. The control unit 805 may increase or decrease the number of carrier frequencies based on the capacity associated with each of the spatially fixed beams. See Ward, col. 10, ll. 11-22. However, Ward is completely silent with regard to modifying the angular extent of the spatially fixed beams.

In response to the above argument, the Examiner alleges that the angular beamwidth changes according to demand. Applicants respectfully disagree. Ward states that each transceiver may be allocated to one of the spatially fixed beams and “at any one time one transceiver can reside on only one beam in a sector.” See Ward, col. 7, ll. 9-10. Consequently, Applicants respectfully submit that the angular extent of the transmissions associated with each transceiver described by Ward remains spatially fixed. Accordingly, Applicants respectfully submit that Ward does not describe or suggest a switch matrix for coupling or uncoupling an amplifier to the at least one radio to modify at least one angular extent of transmission associated with the radio, as set forth in independent claim 1. Applicants also submit that Ward does not teach or suggest a switch matrix to modify at least one angular extent of various portions served by the equipment to meet the capacity demands of the various portions, as set forth in independent claim 12.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Ward and request that the Examiner’s rejections of claims 1-5, 7, and 9-11 under 35 U.S.C. 102(b) be REVERSED.

C. Claim 6 is not obvious over Ward in view of Feuerstein.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Claim 6 depends from independent claim 1. As discussed above, Ward is completely silent with regard to modifying the angular extent of the spatially fixed beams. Thus, Ward fails to teach or suggest modifying the angular extent of a radio transmission, as set forth in independent claim 1. The Examiner relies upon Feuerstein to describe establishing thresholds. However, Feuerstein is also completely silent with regard to modifying the angular extent of a radio transmission. Thus, Applicants respectfully submit that the prior art of record fails to teach or suggest all the limitations of claim 6.

Furthermore, the prior art of record fails to provide any suggestion or motivation to modify or combined the cited references to arrive at the claimed invention. To the contrary, Ward teaches that the beams are spatially fixed and “at any one time one transceiver can reside on only one beam in a sector.” See Ward, col. 7, ll. 9-10. Thus, Applicants submit that Ward teaches away from modifying at least one angular extent of transmission associated with a radio, as set forth in the pending claims. It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not obvious over Ward and Feuerstein, either alone or in combination. Applicants request that the Examiner’s rejections of claim 6 under 35 U.S.C. 103(a) be REVERSED.

D. Claim 8 is not obvious over Ward in view of Lopes.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Claim 8 depends from independent claim 1. As discussed above, Ward is completely silent with regard to modifying the angular extent of the spatially fixed beams. Thus, Ward fails to teach or suggest modifying the angular extent of a radio transmission, as set forth in independent claim 1. The Examiner relies upon Lopes to describe a controller that is a digital signal processor. However, Lopes is also completely silent with regard to modifying the angular extent of a radio transmission. Thus, Applicants respectfully submit that the prior art of record fails to teach or suggest all the limitations of claim 8.

Furthermore, the prior art of record fails to provide any suggestion or motivation to modify or combined the cited references to arrive at the claimed invention. To the contrary, Ward teaches that the beams are spatially fixed and “at any one time one transceiver can reside on only one beam in a sector.” See Ward, col. 7, ll. 9-10. Thus, Applicants submit that Ward teaches away from modifying at least one angular extent of transmission associated with a radio, as set forth in the pending claims. It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not obvious over Ward and Lopes, either alone or in combination. Applicants request that the Examiner’s rejections of claim 8 under 35 U.S.C. 103(a) be REVERSED.

E. Claims 12-17 are not obvious over Smith in view of Ward.

Smith describes techniques for allocating communication equipment. However, as admitted by the Examiner, Smith fails to disclose modifying at least one angular extent of transmission associated with the radio, as set forth in independent claim 12. The Examiner alleges that Ward describes modifying at least one angular extent of transmission associated with the radio. However, as discussed above, Applicants submit that Ward is completely silent with regard to modifying the angular extent of the spatially fixed beams. Thus, Applicants respectfully submit that the prior art of record fails to teach or suggest all the limitations of claims 12-17.

Furthermore, the prior art of record fails to provide any suggestion or motivation to modify or combined the cited references to arrive at the claimed invention. To the contrary, Ward teaches that the beams are spatially fixed and “at any one time one transceiver can reside on only one beam in a sector,” which teaches away from modifying at least one angular extent of transmission associated with a radio, as set forth in the pending claims. It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not obvious over Smith and Ward, either alone or in combination. Applicants request that the Examiner’s rejections of claims 12-17 under 35 U.S.C. 103(a) be REVERSED.

VIII. CLAIMS APPENDIX

The claims that are the subject of the present appeal – claims 1-17 – are set forth in the attached “Claims Appendix.”

IX. EVIDENCE APPENDIX

There is no separate Evidence Appendix for this appeal.

X. RELATED PROCEEDINGS APPENDIX

There is no Related Proceedings Appendix for this appeal.

XI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the Examiner erred in not allowing all claims pending in the present application, claims 1-17, over the prior art of record. The undersigned may be contacted at (713) 934-4052 with respect to any questions, comments or suggestions relating to this appeal.

Respectfully submitted,

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AGENT FOR APPLICANTS



CLAIMS APPENDIX

1. (PREVIOUSLY PRESENTED) A beam on demand system comprising:
 - at least one radio;
 - a plurality of amplifiers each having an input switchably coupled with the at least one radio by means of a switch matrix and with at least one beam former, each amplifier having at least one output coupled to an antenna array; and
 - a controller for receiving an output transmission power level signal from each of the plurality of amplifiers wherein the controller generates a control signal to the switch matrix for coupling or uncoupling an amplifier to the at least one radio to modify at least one angular extent of transmission associated with the radio, the control signal being based on the received output transmission power level of the amplifier and a threshold transmission power.
2. (ORIGINAL) The beam on demand system of claim 1 where the controller couples or uncouples an amplifier from the at least one radio based on whether the received transmission power of the amplifier is, above or below the threshold transmission power.
3. (ORIGINAL) The beam on demand system of claim 1 where the amplifier and a corresponding antenna element of the antenna array are coupled or uncoupled to or from the at least one radio.
4. (ORIGINAL) The beam on demand system of claim 1 where the control signal is based on the transmission power level of a group of which the amplifier is a member and a threshold

transmission power level established for the group.

5. (PREVIOUSLY PRESENTED) The beam on demand system of claim 1 where the control signal is based on the transmission power level of the amplifier and a threshold transmission power established for the amplifier.

6. (ORIGINAL) The beam on demand system of claim 1 where the threshold is calculated by the controller and the threshold is based on the total average transmission power of a set of amplifiers from the plurality of amplifiers.

7. (PREVIOUSLY PRESENTED) The beam on demand system of claim 1 where the at least one radio is switchably coupled with a set of amplifiers from the plurality of amplifiers and an amplifier is either removed from the set or added to the set based on the threshold transmission power of the set and the transmission power of the amplifier to be added or removed.

8. (ORIGINAL) The beam on demand system of claim 1 where the controller is a Digital Signal Processor.

9. (ORIGINAL) The beam on demand system of claim 1 where each amplifier output is coupled to an antenna element of the antenna array.

10. (PREVIOUSLY PRESENTED) The beam on demand system of claim 1 where the

switch matrix has N inputs and M outputs where N and M are integers equal to 1 or greater and M is greater than N.

11. (PREVIOUSLY PRESENTED) The beam on demand system of claim 1 where the system serves a cell that is part of a wireless communication system.

12. (PREVIOUSLY PRESENTED) A method for automatically allocating system equipment of a communication system, the method comprising the steps of:

providing equipment to serve various portions of the communication system;

monitoring the equipment to determine capacity demands of the various portions; and

switching equipment between portions of the communication system using a switch matrix to modify at least one angular extent of the various portions served by the equipment to meet the capacity demands of the various portions.

13. (ORIGINAL) The method of claim 12 where the step of monitoring equipment further comprises establishing capacity thresholds for the various portions of the communication system.

14. (ORIGINAL) The method of claim 12 where the step of monitoring equipment further comprises establishing a capacity threshold for each of the provided equipment.

15. (ORIGINAL) The method of claim 12 where the step of switching equipment between portions of the communication system comprises automatically transferring a provided equipment from one portion to another portion to meet the capacity demands of one or both of

the portions.

16. (ORIGINAL) The method of claim 12 where the step of switching equipment between portions of the communication system further comprises the steps of:

determining the capacity demand of the portion of the communication system to which equipment is switched; and

switching the equipment to the portion when the capacity demand of the portion is calculated to be below an established capacity threshold even after the equipment has been switched.

17. (PREVIOUSLY PRESENTED) The method of claim 12 where the equipment being switched are amplifiers coupled to antenna elements of an antenna array and the amplifiers are switchably coupled with at least one radio by means of beam formers and the switch matrix, wherein the capacity demands are represented by transmission power levels of the amplifiers and the various portions are sectors and/ or sub-sectors of a cell of a wireless communication system.